

Configuration Information 3

ASM Manager Station conveniently allows the user to view information concerning the *system*, *hardware*, and *MIB-II* configurations of machines. This information includes:

System Configuration Information:

- **DMI Information.** Information about the processor, BIOS, and memory for the selected server.
- **System Resource Information.** Information about IRQ address, DMA channels, I/O ports, and memory addresses.
- **Storage Information.** Information about the type of controller and hard disk being used to store data.
- **I/O Device Information.** Information about system I/O devices, such as diskette drives, SCSI information, and I/O ports.
- **NIC Information.** Information about network interface cards, including the card type, model name, slot, IP address, IRQ, and I/O port.
- **Performance Monitoring.** Shows a brief summary of system performance and maintainability aspects.
- **Polling Interval.** You can set polling intervals for the station to update the data with the current available information.
- **Processor Performance.** Measures the CPU usage in the machine.
- **Memory Utilization.** System memory utilization and threshold setting information.
- **Disk Utilization.** Information about the performance efficiency of a particular disk on a server.
- **File System Utilization.** File system utilization and threshold setting information.

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- **NIC Utilization.** Network interface card data transmission utilization information.
 - **NIC Fault.** Network interface card data transmission fault.
 - **UPS Devices.** There are two kinds of UPS functions supported by ASM Pro:
 - **UPS feature built into the server system.** Shows information concerning UPS connection and configuration.
 - **Redundant Power Supply.** Information about the redundant power supply installed in a system.

Hardware Configuration Information:

- **H/W Monitor.** Displays the current status of the CPU voltage, System voltage, Temperature, Fan status, Chassis status, and RDM (Remote Diagnostic Management) status.
- **PCI Bus Utilization.** Displays percent PCI bus utilization (for some models only).

MIB-II Configuration Information:

- System
- Interface
- AT
- IP
- ICMP
- TCP
- UDP
- SNMP

The following sections briefly describe each feature.

User can use the **Refresh** button in each window to get information again.

System Configuration Information

The user can click "System" under desired service agent name in the "System Listing" window, ASM station enables its toolbar, user then click on "DMI Information" button, to get system, BIOS, Processor, and more information.

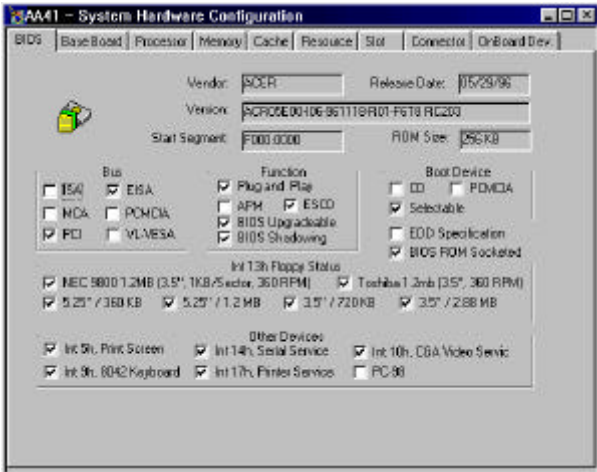


DMI Information

The user can access general information about the machine currently being monitored. This information helps you keep track of the machines and helps you manage them more efficiently. You can view other information by clicking on the information tabs. The following sections describe each of the tabs.

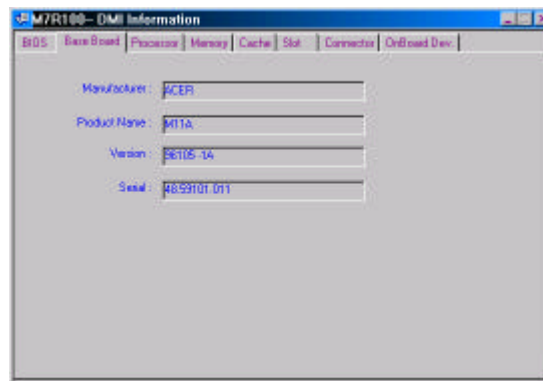
BIOS Characteristics

The BIOS characteristics tab displays a screen showing details of the current BIOS. It also shows various types of hardware supported by the current BIOS. The check marks show the supported bus, function, boot device, int13 floppy status, and other services based on the DMI specification used.



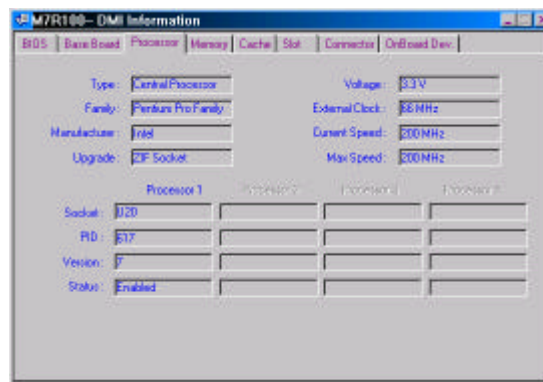
Base Board Information

The Base Board information tab shows the manufacturer, product name, version and serial number of the base board.



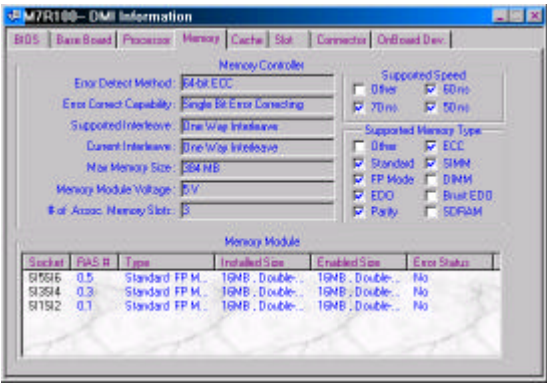
Processor Information

The Processor tab shows the type, speed, version number, and other information about each CPU on the server.



Memory Information

The Memory tab displays information about the memory controller and the memory module.



MEMORY CONTROLLER INFORMATION

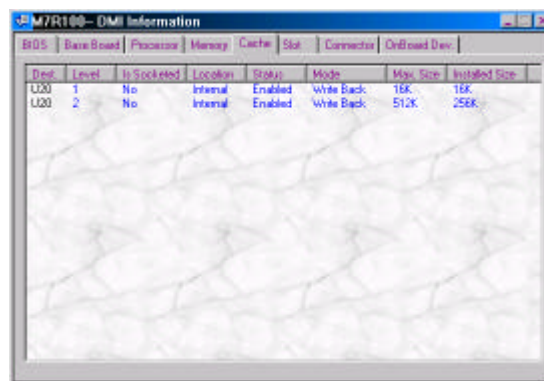
Memory Controller shows the supported attributes of all memory modules present in the controller's sockets.

MEMORY MODULE INFORMATION

Memory Module shows detailed information about each socket, including the type, installed size, and error status.

Cache Information

The Cache information tab displays attributes of CPU cache devices.

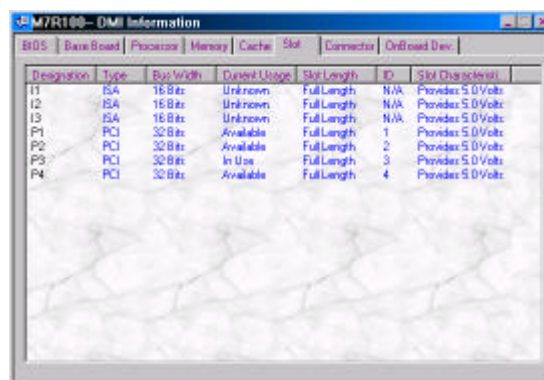


The screenshot shows the 'Cache' tab of the 'M7R100 - DMI Information' window. The table lists two cache devices, U20 and U23, both of which are internal, enabled, and in 'Write Back' mode. U20 has a 16K max size and 16K installed size, while U23 has a 512K max size and 256K installed size.

Dev#	Level	In Socketed	Location	Status	Mode	Max. Size	Installed Size
U20	1	No	Internal	Enabled	Write Back	16K	16K
U23	2	No	Internal	Enabled	Write Back	512K	256K

Slot Information

The Slot information tab displays information about different slots on the system board, including the type and availability of each bus. Please refer to the EISA or PCI specification for definitions of the slot IDs. The *Designation* field refers to the motherboard layout label.

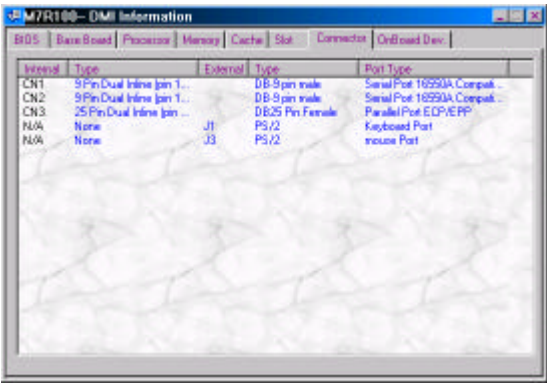


The screenshot shows the 'Slot' tab of the 'M7R100 - DMI Information' window. The table lists six slots (I1, I2, I3, P1, P3, P4) with their respective types (ISA or PCI), bus widths (16 or 32 bits), current usage (Unknown, Available, or In Use), slot lengths (Full Length), IDs, and slot characteristics (Provided 5.0 Volts).

Designation	Type	Bus Width	Current Usage	Slot Length	ID	Slot Characteristics
I1	ISA	16 Bits	Unknown	Full Length	N/A	Provides 5.0 Volts
I2	ISA	16 Bits	Unknown	Full Length	N/A	Provides 5.0 Volts
I3	ISA	16 Bits	Unknown	Full Length	N/A	Provides 5.0 Volts
P1	PCI	32 Bits	Available	Full Length	1	Provides 5.0 Volts
P3	PCI	32 Bits	In Use	Full Length	3	Provides 5.0 Volts
P4	PCI	32 Bits	Available	Full Length	4	Provides 5.0 Volts

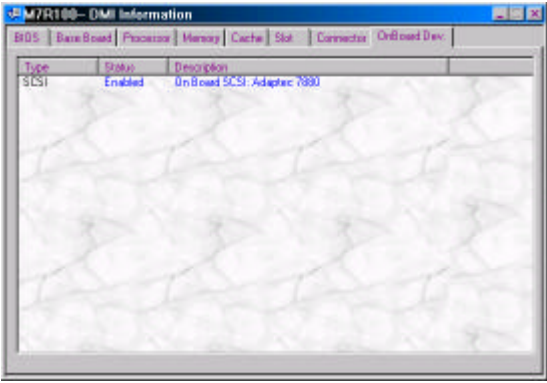
Connector Information

The Connector tab displays information about the motherboard connectors.



Onboard Devices

The Onboard Device tab displays information about devices found on the motherboard.

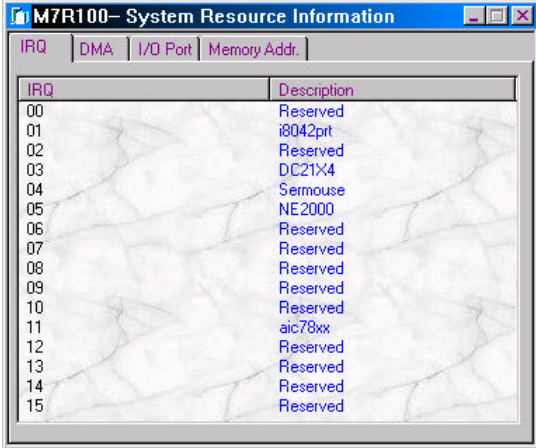


System Resource Information

System Resource Information consists of four tabs: IRQ, DMA, I/O Port, and Memory Address. The following sections briefly describe each of these types of resource information.

IRQ Information

This screen displays a list of each IRQ and its assigned usage in the system. It can be used to detect a hardware interrupt conflict.

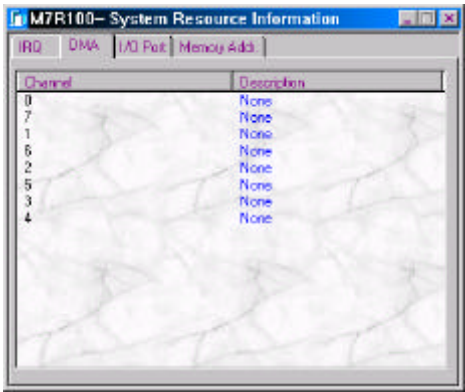


The screenshot shows a window titled "M7R100- System Resource Information" with four tabs: "IRQ", "DMA", "I/O Port", and "Memory Addr.". The "IRQ" tab is selected, displaying a table with two columns: "IRQ" and "Description". The table lists IRQs from 00 to 15. IRQs 00, 02, 03, 06, 07, 08, 09, 10, 12, 13, 14, and 15 are marked as "Reserved". IRQ 01 is assigned to "i8042prt", IRQ 04 to "Sermouse", IRQ 05 to "NE2000", and IRQ 11 to "aic78xx".

IRQ	Description
00	Reserved
01	i8042prt
02	Reserved
03	DC21X4
04	Sermouse
05	NE2000
06	Reserved
07	Reserved
08	Reserved
09	Reserved
10	Reserved
11	aic78xx
12	Reserved
13	Reserved
14	Reserved
15	Reserved

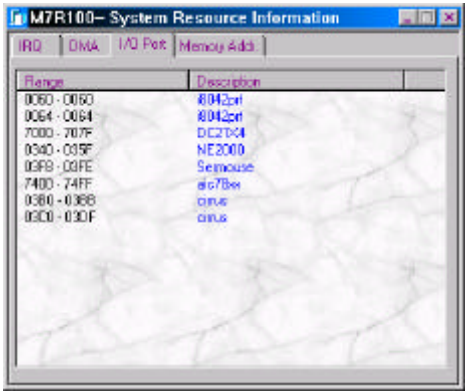
DMA Information

This screen displays all the DMA channels used by each device in the system.



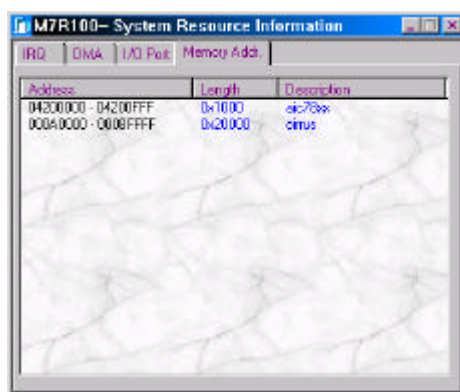
I/O Port Information

This displays the range of port addresses occupied by the system resources.



Memory Address

This displays the system's base memory usage, including the address, the length, and its description.



The screenshot shows a window titled "M7R100- System Resource Information" with four tabs: "IRQ", "DMA", "I/O Port", and "Memory Addr". The "Memory Addr" tab is selected, displaying a table with three columns: "Address", "Length", and "Description".

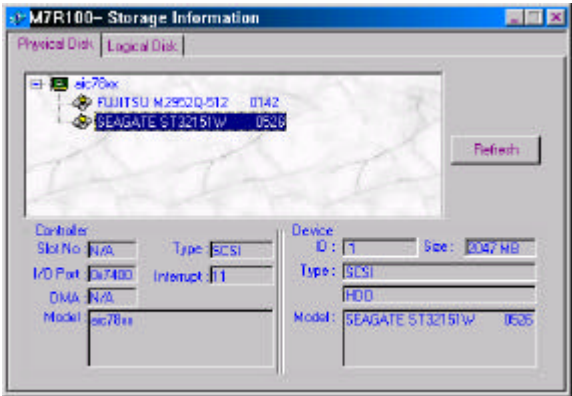
Address	Length	Description
04200000 - 04200FFF	0x1000	ac703a
000A0000 - 000BFFFF	0x20000	crus

Storage Information

Shows information concerning the size, type, and controller of all physical and logical hard disks that are configured on the machine.

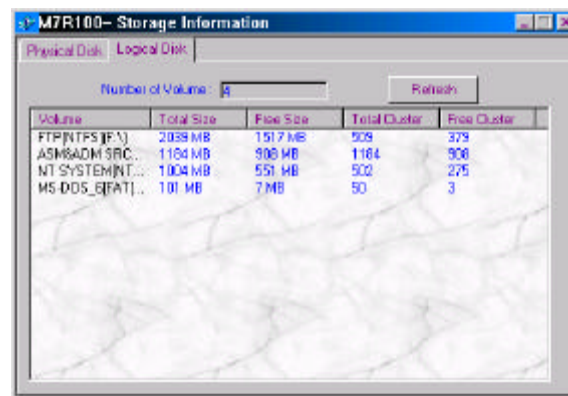
Physical Disk

Physical disk indicates the number of actual hard disk drives installed in a machine. Each hard disk drive is connected to an adapter that controls them. By clicking on a hard disk drive you can view HDD controller and device information as shown in this screen. If the hard disk drive has an existing logical drive, you can click on the Logical Disk tab to view its contents. See the next section.



Logical Disk

Logical disks are created when you separate a hard disk into several partitions and designate each of them as an independent logical drive. This window shows you information about each logical drive created on the hard disk drives.

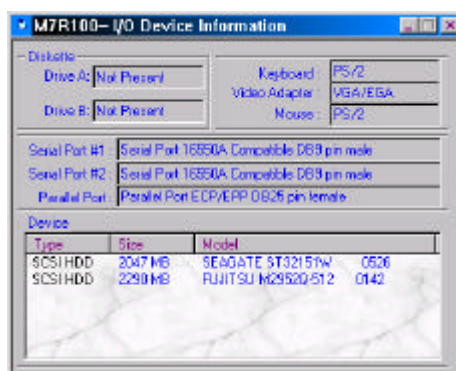


The screenshot shows a window titled 'M7R100- Storage Information'. It has two tabs: 'Physical Disk' and 'Logical Disk', with 'Logical Disk' selected. Below the tabs is a 'Number of Volume' input field set to '3' and a 'Refresh' button. A table displays the following data:

Volume	Total Size	Free Size	Total Cluster	Free Cluster
FTP\NTFS (F:\)	2039 MB	1517 MB	909	379
ASMSADM\$RC...	1184 MB	906 MB	1164	906
NT SYSTEM\NT...	1004 MB	551 MB	902	275
MS-DOS_6FAT1...	101 MB	7 MB	90	3

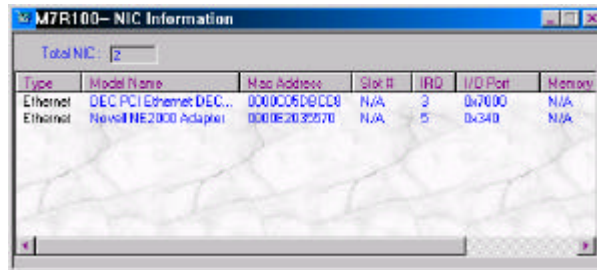
I/O Device Information

Shows information about the input/output devices currently installed in the machine.



NIC Information

NIC (Network Interface Card) Information shows you all the network interface cards installed in the machine. Details are provided for the model name, slot number being used, IRQ, I/O port, base memory address, and DMA address.



The screenshot shows a window titled "M7R100-NIC Information". At the top, there is a label "Total NIC: 2" next to a small input field. Below this is a table with the following columns: Type, Model Name, Mac Address, Slot #, IRQ, I/O Port, and Memory. The table contains two rows of data.

Type	Model Name	Mac Address	Slot #	IRQ	I/O Port	Memory
Ethernet	DEC PCI Ethernet DEC...	0000C05D8CC8	N/A	3	0x7000	N/A
Ethernet	Novell NE2000 Adapter	0000E2032570	N/A	5	0x340	N/A

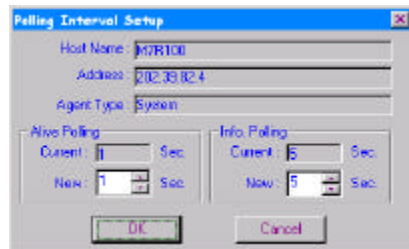
Performance Monitoring

ASM Pro monitors the performance of each agent periodically and sends this information back to the ASM Manager Station. The polling interval of the station can be configured to check the agents whenever the system administrator chooses.

Changing Polling Interval

User selects "Change polling interval" option from "Setup" menu to open this dialog.

The Alive Polling interval checks for the connection status between the station and the agent while the Information Polling Interval determines how frequently the station polls the agents to update its data.



To change these polling intervals, click the up and down button to increase or decrease the number of seconds for each polling interval or just type in the number of seconds you want between times the station polls the agents and then click **OK**..



The polling intervals must be from 1 to 60 seconds.

Processor Performance

Shows the current load and load limit of each CPU (Central Processing Unit) installed in the machine. The higher the percentage, the more the CPU is being utilized. This can be used to indicate how much load the server has and how well the server's processing power is handling the load.

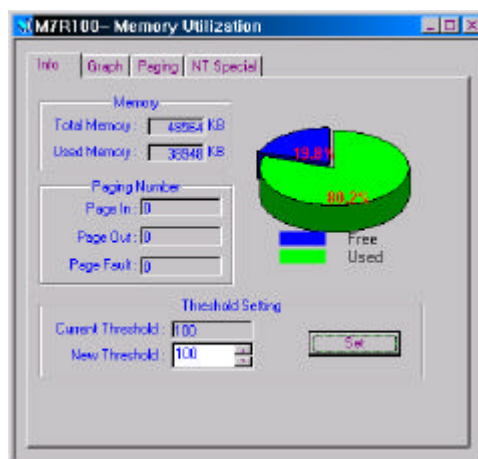


Memory Utilization

The Memory Utilization window consist of four tabs: Info, Graph, Paging, and NT Special. The following sections give brief descriptions of each of these tabs.

INFO TAB

This tab displays general information about the type and the total amount of memory installed in the machine. It also displays a graph showing the percentage of use and threshold setting. If the memory allocation exceeds the threshold then a trap will be sent to the station. For more information about trap handling, please refer to Event Notification and Threshold Setup in Chapter 4.



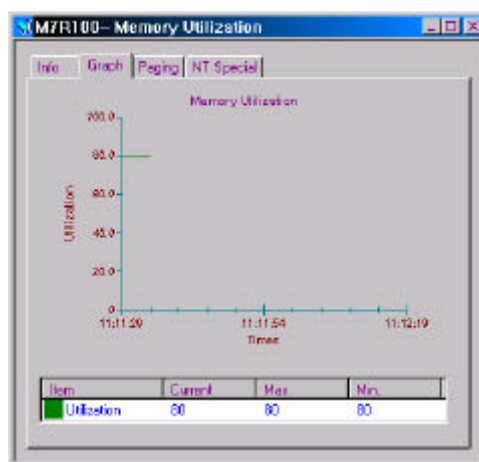
To change the threshold setting, click the up and down button to increase or decrease the percentage of utilization or just type in the desired value and then click **Set**.



If the password is enabled in the ASM Server Agent, you will be required to enter the password for the Agent when changing the threshold setting.

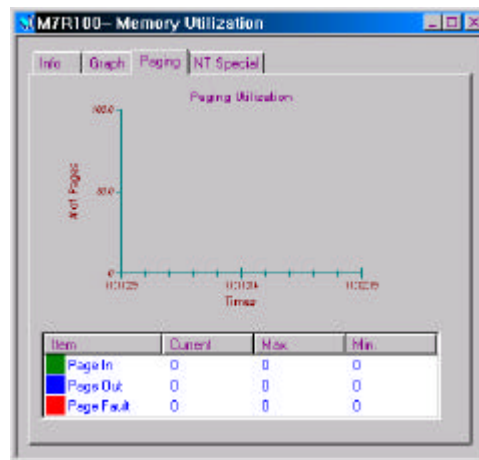
GRAPH TAB

The Graph tab shows a graph measuring the utilization of the memory along a time table.



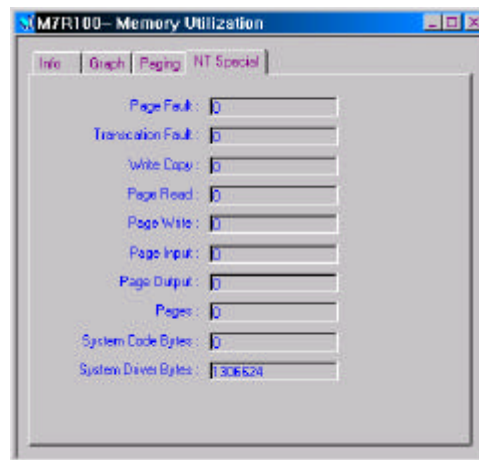
PAGING TAB

The Paging tab shows a graphic representation of memory paging.



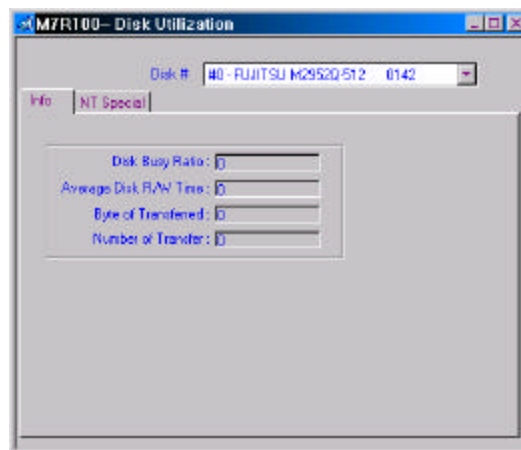
NT SPECIAL TAB

The NT Special tab shows Windows NT-specific information related to memory utilization.



Disk Utilization

For NetWare, this command is enabled only if a server is highlighted in the System Listing window and is used to view the number of redirected blocks in the storage device for the NetWare environment. For SCO OpenServer and Windows NT, Disk Utilization will display information similar to this screen:

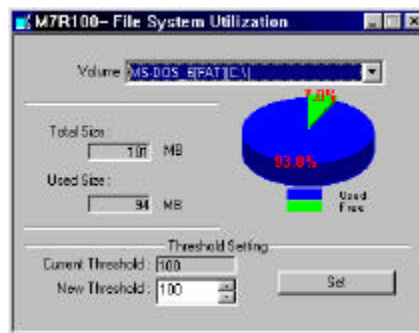


Notice that for Windows NT, you can click on the **NT Special** tab to display some information that is only supported in Windows NT. The figure below shows a sample screen.



File System Utilization

In the screen shown below, 7% indicates that the file system utilization is using 7% of its available resources. The threshold setting is set at 100%. When 100% is reached, the Utilization field turns from green to red, indicating that the threshold has been reached. For more information on setting event notifications, refer to Event Notification Threshold Setup in Chapter 4.



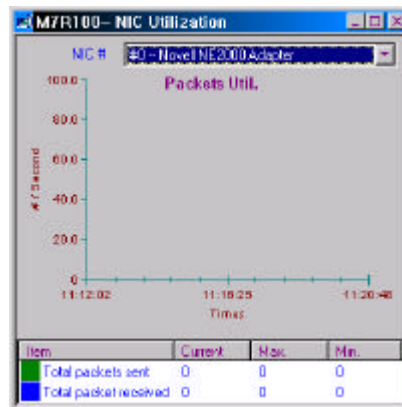
To change the threshold setting, click the up and down button to increase or decrease the percentage of utilization or just type in the desired value and then click **Set**.



If the password is enabled in the ASM Server Agent, you will be required to enter the password for the Agent when changing the threshold setting.

NIC (Network Interface Card) Utilization

The NIC Utilization window shows the receive and transmit transactions of network cards on the selected machine.



The window above shows current receive and transmit transactions (bytes and packets) of NICs on selected servers. This information is especially useful in determining the periods during which the agent is at its peak.

NIC (Network Interface Card) Fault

This tab shows the number of instances of different faults in the selected Network Interface Card.

To view a particular network card, click the arrow button of the NIC# combo box and select a network card from the list.

UPS Devices



This utility applies only to certain systems.

There are two kinds of UPS functions supported by ASM Pro:

- UPS Feature Built Into the Server System
- Redundant Power Supply

UPS Feature Built Into the Server System

ASM Server Agent supports the UPS feature. The UPS feature ensures a graceful system shutdown in the event of an AC power supply failure. A battery backup maintains power for a short time, allowing users to back up their files and log off the system.

UPS is a very important server feature, because most servers have critical data files stored online and these files are constantly being modified. If these changes are not saved or the file system becomes damaged due to an AC power failure, the users may lose a substantial amount of work.

ASM Server Agent automatically detects an AC power failure and broadcasts a message to all users logged on to the server, notifying them that they need to save their work and log off the server. The first broadcast message appears two minutes before the server shuts down. A second broadcast message appears one minute before the server shuts down. One minute after the second message, the ASM-Server Agent synchronizes all file systems and performs a proper system shutdown.

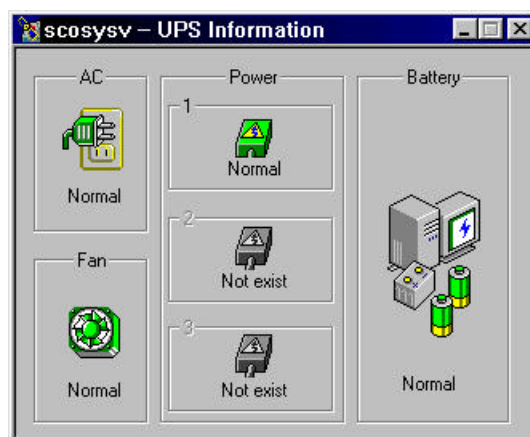
The UPS feature distinguishes a power failure from a spike in the power source. When the AC power is interrupted, the UPS immediately activates the battery backup. The ASM Server Agent initiates the two-minute warning message only after detecting a power failure that has lasted for 30 seconds. This makes a total of two

minutes and 30 seconds between the AC power failure and the automatic system shutdown.

The UPS feature is built into the ASM Server Agent software. You must install the ASM Server Agent software on the server in order to use this feature. UPS is supported on all platforms: Novell NetWare, SCO Unixware, SCO OpenServer, and Windows NT. Your hardware must also support UPS for this feature to be operational. See your system hardware manual for more details on the UPS feature.

UPS INFORMATION

ASM Pro automatically detects the UPS capability in your server. If your server system has built-in UPS hardware, you can view UPS information by selecting **Information** ⇒ **Device** to display the UPS Information screen, as shown below. If the Device submenu is grayed out, it means that ASM Pro does not find the UPS hardware in your server.



There are four parts monitored by ASM Pro in UPS Information:

- AC Power
- UPS Fan

- UPS Power Supply (a maximum of 3 power supplies are supported)
- UPS Battery

The color shown for each icon represents its working status: green means Normal, red means Fail, and gray means Does Not Exist or Unknown.

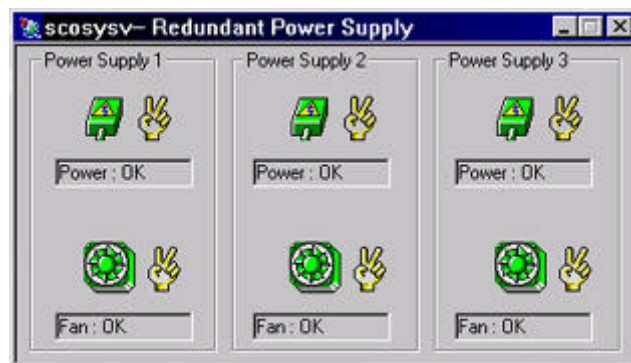
Redundant Power Supply

ASM Pro automatically detects the Redundant Power Supply hardware in your server.

Select the **Device** submenu of the Information menu to display the Redundant Power Supply screen. If the Device submenu is grayed out, it means that ASM Pro does not find the Redundant Power Supply hardware in your server.

This screen shows you the current working condition of the server's redundant power supplies and their respective fans. When redundancy between power supplies has been interrupted, i.e. one or both power supplies fail, or a fan stops working, a Fail status will be shown in the Information ⇒ Device ⇒ Redundant Power Supply window. Once this happens, you can refer to this window to determine the cause of failure.

The color shown for power supply or fan icons represent their working status. Green means Normal, red means Fail, and gray means Does Not Exist or Unknown.



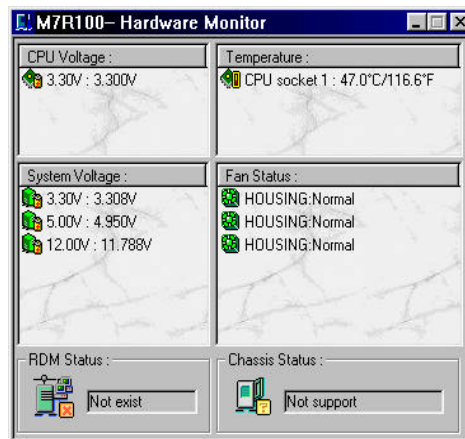
Hardware Configuration Information

Select "hardware" under desired service agent name in the "System Listing" window, ASM station enables hardware toolbar.



H/W Monitor Information

The Hardware Monitor information window displays the current status of the CPU voltage, System voltage, Temperature, Fan status, Chassis status, and RDM (Remote Diagnostic Management) status.



ASM Manager Station regularly updates these values every polling interval cycle. The polling interval cycle can be from 1 to 60 seconds depending on the setting indicated by the system administrator. See Polling Interval for more information.

The Chassis Status indicates whether the system housing is normal (intact) or abnormal (removed). If ASM Pro can not determine the status of the system housing it will display „Not supported.“

All fields in this screen have a preset threshold setting. These preset threshold settings are not user configurable; they are internally preset to manufacturer-recommended values. When the threshold is exceeded, the action predefined by the system administrator will be used to correct the problem. See Fault Management for more information.

CPU Voltage

The voltage for each CPU's power source is shown here. The icon appears green when the voltage is within the normal range. The icon turns red when the voltage is not within this range. A trap is generated whenever the voltage is out of range. This trap is recorded in the trap log file. See Trap Events Log.

CPU Temperature

The CPU temperature is monitored in two stages. First ASM Manager Station will give out a warning when a rise in temperature is detected. If the temperature continues to rise, a temperature critical trap is issued. In some models, you can set the threshold values in BIOS setup.

- Temperature Warning. 131°F (55°C) is the default threshold value for the temperature warning trap. When the temperature reaches this threshold, a trap is generated. This trap is recorded in the trap log file. See Trap Events Log. The icon turns green when the temperature is below 55°C. The icon turns yellow when the temperature is between 131°F and 167°F (55°C and 75°C).
- Temperature Critical. 167°F (75°C) is the default threshold value for the temperature critical trap. When the temperature reaches this threshold, a trap is generated. This trap is recorded in the trap log file. See Trap Events Log. The icon turns red when the voltage reaches 167°F (75°C).
-



The above threshold values can be changed in BIOS setup if the BIOS supports this feature.

System Voltage

The system power sources are shown here. The icon appears green when the voltage is within the proper range. The icon turns red when the voltage is not within this range. A trap is generated whenever the voltage is out of range. This trap is recorded in the trap log file. See Trap Events Log.

Fan Status

The fan status is monitored through the hardware module of the server; no user configurable setting exists. Each fan is represented by a picture of a fan to the left of the fan name. The icon appears green when the fan is functioning properly. The icon turns red when the fan is not working. A trap is generated whenever the fan is not working. This trap is recorded in the trap log file. See Trap Events Log.

Chassis Status

The chassis status is monitored through the hardware module of the server; no user configurable setting exists. If the server can detect chassis status, the status will be normal if the cover is closed or abnormal if the cover is open. If the server doesn't have chassis status detecting capability, the status will indicate that it is „not supported.“ A trap is generated whenever the chassis is opened and the system is not properly shutdown. This trap is recorded in the trap log file. See Trap Events Log.



The above events are critical. If any of the above events occurs, correct the problem right away, as damage to your system may result if the problem is left unattended.

RDM Status

The RDM status is monitored through the hardware module of the server. If the server does not have RDM status detecting capability, the status will be indicated as „Unknown.“ The status will be indicated as „Active“ if you have RDM installed in your machines. The status is „Not Exist“ if your server does not have the RDM module installed.

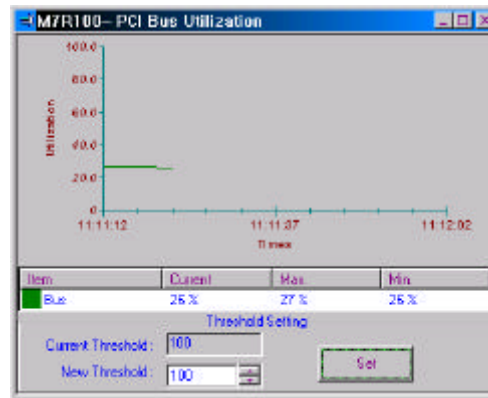
PCI Bus Utilization

This window shows the utilization of your machine's PCI (Peripheral Component Interconnect) bus. You can also set a threshold value so that the ASM Manager Station will notify you whenever a machine exceeds its allowable threshold setting.



Not all models will support this feature. If not, the icon of PCI Bus Utilization in toolbar will be disabled.

The value in the window below indicates that the machine is using 26% of its PCI Bus resources. The threshold setting is set at 100%. When the utilization percentage (26%) reach this threshold (100%), the bus icon will turn red, indicating that the threshold has been reach. For more information about setting Trap Handling, please refer to the Event Notification and Threshold Setup.



Setting the Threshold

Threshold settings are preset by the manufacturer for each server. These threshold settings may be changed by the system administrator.

To change the PCI bus utilization threshold setting, click the up and down arrow button to increase and decrease the threshold value respectively or just type it in and then click **Set**.



If the password is enabled in the ASM Server Agent, you will be required to enter the password for the Agent when changing the threshold setting.

MIB-II Configuration Information

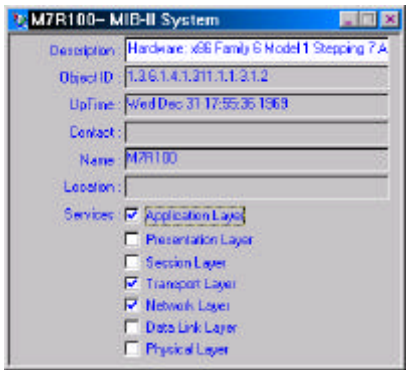
This section includes specifications about MIB-II (Management Information Base), a database of objects that can be monitored by a network management system. Both SNMP and RMON use standardized MIB formats that allow any SNMP and RMON tools to monitor any device defined by an MIB. For more information about each network working group, please refer to RFC1213.

Select "MIB-II" under desired service agent name in the "System Listing" window, ASM station enables MIB-II toolbar.



System

Implementation of the system group is mandatory for all systems. If an agent is not configured to have a value for any of these variables, a string of length 0 is returned.

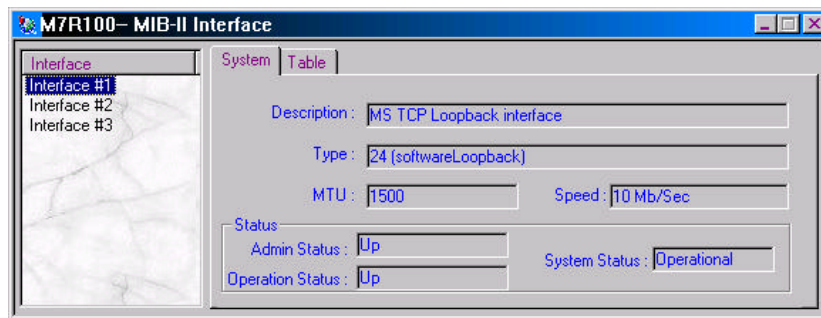


Parameter	Description
Description	A textual description of the entity. This value should

Parameter	Description
	include the full name and version identification of the system's hardware type, software operating-system, and networking software.
Object ID	The vendor's authoritative identification of the network management subsystem contained in the entity. This value is allocated within the SMI enterprises subtree (1.3.6.1.4.1) and provides an easy and unambiguous means for determining 'what kind of box' is being managed. For example, if vendor 'Flintstones, Inc.' was assigned the subtree 1.3.6.1.4.1.4242, it could assign the identifier 1.3.6.1.4.1.4242.1.1 to its 'Fred Router'.
Up Time	The time (in hundredths of a second) since the network management portion of the system was last re-initialized.
Contact	The textual identification of the contact person for this managed node, together with information on how to contact this person.
Name	An administratively-assigned name for this managed node. By convention, this is the node's fully-qualified domain name.
Location	The physical location of this node (e.g., 'telephone closet, 3rd floor').
Services	A value which indicates the set of services that this entity primarily offers. Layer functionality: <ul style="list-style-type: none"> 1 physical (e.g., repeaters) 2 datalink/subnetwork (e.g., bridges) 3 internet (e.g., IP gateways) 4 end-to-end (e.g., IP hosts) 7 applications (e.g., mail relays)

Interface

Implementation of the Interface group is mandatory for all systems.



System Tab

Parameter	Description
Description	A textual string containing information about the interface. This string should include the name of the manufacturer, the product name and the version of the hardware interface.
Type	The type of interface, distinguished according to the physical/link protocol(s) immediately 'below' the network layer in the protocol stack.
MTU	The size of the largest datagram which can be sent/received on the interface, specified in octets. For interfaces that are used for transmitting network datagrams, this is the size of the largest network datagram that can be sent on the interface.
Speed	An estimate of the interface's current bandwidth in bits per second. For interfaces which do not vary in bandwidth or for those where no accurate estimation can be made, this object should contain the nominal bandwidth.
Admin Status	The desired state of the interface. The testing(3) state indicates that no operational packets can be passed.

Parameter	Description
Operation Status	The current operational state of the interface. The testing(3) state indicates that no operational packets can be passed.

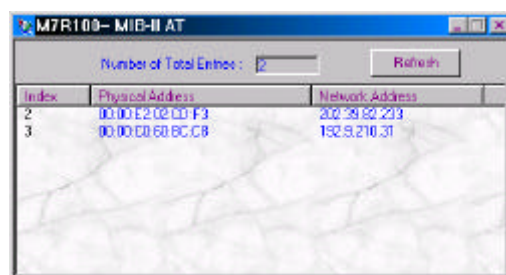
Table Tab

Parameter	Description
Input Total Bytes	The total number of octets received on the interface, including framing characters.
Input Unicast Packets	The number of subnetwork-unicast packets delivered to a higher-layer protocol.
Input Non-Unicast Packets	The number of non-unicast (i.e., subnetwork-broadcast or subnetwork-multicast) packets delivered to a higher-layer protocol.
Input Discard Packets	The number of inbound packets which were chosen to be discarded even though no errors had been detected to prevent their being deliverable to a higher-layer protocol. One possible reason for discarding such a packet could be to free up buffer space.
Input Error Packets	The number of inbound packets that contained errors preventing them from being deliverable to a higher-layer protocol.
Output Total Bytes	The total number of octets transmitted out of the interface, including framing characters.
Output Unicast Packets	The total number of packets that higher-level protocols requested be transmitted to a subnetwork-unicast address, including those that were discarded or not sent.
Output Non-Unicast Packets	The total number of packets that higher-level protocols requested be transmitted to a non-unicast (i.e., a subnetwork-broadcast or subnetwork-multicast) address, including those that were discarded or not sent.

Parameter	Description
Output Discard Packets	The number of outbound packets which were chosen to be discarded even though no errors had been detected to prevent their being transmitted. One possible reason for discarding such a packet could be to free up buffer space.
Output Error Packets	The number of outbound packets that could not be transmitted because of errors.

AT (Address Translation)

Implementation of the Address Translation group is mandatory for all systems. Note, however, that this group is deprecated by MIB-II. That is, it is being included solely for compatibility with MIB-I nodes, and will most likely be excluded from MIB-III nodes. From MIB-III and onwards, each network protocol group contains its own address translation table.



The screenshot shows a window titled "M7R100-MIB-II AT". Inside, there is a "Number of Total Entries:" field with the value "2" and a "Refresh" button. Below this is a table with three columns: "Index", "Physical Address", and "Network Address".

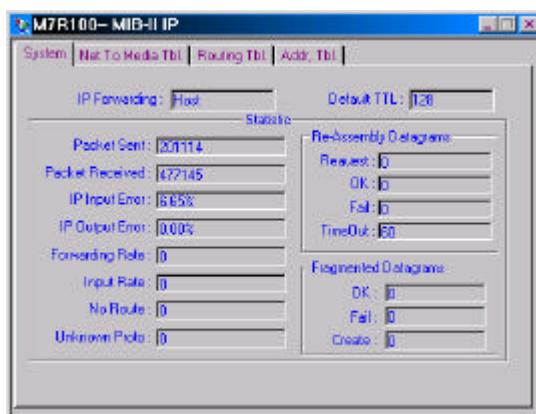
Index	Physical Address	Network Address
2	00:00:E2:02:00:F3	202.98.62.223
3	00:00:00:00:00:00	192.8.210.31

The Address Translation group contains one table which is the union across all interfaces of the translation tables for converting a NetworkAddress (e.g., an IP address) into a subnetwork-specific address. For lack of a better term, this document refers to such a subnetwork-specific address as a 'physical' address.

Parameter	Description
Physical Address	The media-dependent 'physical' address.
Network Address	The NetworkAddress (e.g., the IP address) corresponding to the media-dependent 'physical' address.

IP

Implementation of the IP group is mandatory for all systems.



Parameter	Description
System Tab	Implementation of the IP group is mandatory for all systems.

Parameter	Description
Net to Media Table	The IP address translation table contain the IpAddress to `physical' address equivalences. Some interfaces do not use translation tables for determining address equivalences (e.g., DDN-X.25 has an algorithmic method); if all interfaces are of this type, then the Address Translation table is empty, i.e., has zero entries.
Routing Table	The IP routing table contains an entry for each route presently known to this entity.
IP Address Table	The IP address table contains this entity's IP addressing information.

ICMP

Implementation of the ICMP group is mandatory for all systems.

	Input	Output	Total
ICMP Message :	55	56	111
Error :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Dst. Unreachable :	0 (0.0%)	55 (94.5%)	55 (100.0%)
Time Exceeded :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Parameter Problem :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Source Quench :	2 (0.5%)	0 (0.0%)	2 (0.5%)
Redirect :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Echo :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Echo Reply :	0 (0.0%)	3 (5.2%)	3 (0.7%)
Timestamp :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Timestamp Reply :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Add. Mask Request :	0 (0.0%)	0 (0.0%)	0 (0.0%)
Add. Mask Reply :	0 (0.0%)	0 (0.0%)	0 (0.0%)

Parameter	Description
Input/Output Messages	The total number of messages which the entity received/sent. Note that this counter includes all those counted by InErrors.

Parameter	Description
Input/Output Errors	The number of messages which the entity received/sent but determined as having -specific errors (bad checksums, bad length, etc.).
Input/Output Dest Unreachs	The number of Destination Unreachable messages received/sent.
Input/Output Time Exceeds	The number of Time Exceeded messages received/sent.
Input/Output Parameter Problems	The number of Parameter Problem messages received/sent.
Input/Output Source Quenchs	The number of Source Quench messages received/sent.
Input/Output Redirects	The number of Redirect messages received/sent.
Input/Output Echos	The number of Echo (request) messages received/sent.
Input/Output Echo Replys	The number of Echo Reply messages received/sent.
Input/Output Timestamps	The number of Timestamp (request) messages received/sent.
Input/Output Timestamp Reply	The number of Timestamp Reply messages received/sent.
Input/Output Addr Masks Request	The number of Address Mask Request messages received/sent.
Input/Output Addr Mask Replys	The number of Address Mask Reply messages received/sent.

TCP

The TCP connection table contains information about this entity's existing TCP connections.

Note that instances of object types that represent information about a particular TCP connection are transient; they persist only as long as the connection in question.



System Tab

Parameter	Description
Retrans Algorithm	The algorithm used to determine the timeout value used for retransmitting unacknowledged octets.
Retrans Min	The minimum value permitted by a TCP implementation for the retransmission timeout, measured in milliseconds.
Retrans Max	The maximum value permitted by a TCP implementation for the retransmission timeout, measured in milliseconds.

Parameter	Description
Max Conn	The limit on the total number of TCP connections the entity can support. In entities where the maximum number of connections is dynamic, this object should contain the value -1.
Active Opens	The number of times TCP connections have made a direct transition to the SYN-SENT state from the CLOSED state.
Passive Opens	The number of times TCP connections have made a direct transition to the SYN-RCVD state from the LISTEN state.
Received Segments	The total number of segments received, including those received in error. This count includes segments received on currently established connections.
Sent Segments	The total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.

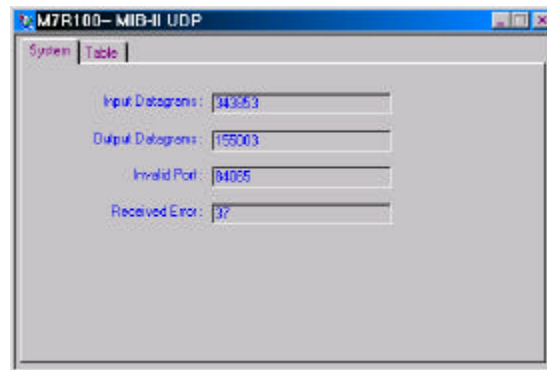
Table Tab

The TCP connection table contains information about this entity's existing TCP connections.

Parameter	Description
Status	The state of this TCP connection.
Local Address	The local IP address for this TCP connection. In the case of a connection in the listen state which is willing to accept connections for any IP interface associated with the node, the value 0.0.0.0 is used.
Local Port	The local port number for this TCP connection.
Remote Address	The remote IP address for this TCP connection.
Remote port	The remote port number for this TCP connection.

UDP

The UDP listener table contains information about this entity's UDP end-points on which a local application is currently accepting datagrams.



The screenshot shows a window titled "M7R100-MIB-II UDP" with two tabs: "System" and "Table". The "System" tab is selected, displaying four statistics in a list box:

- Input Datagrams: 94359
- Output Datagrams: 155003
- Invalid Port: 84055
- Received Error: 37

System Tab

Parameter	Description
Input Datagrams	The total number of UDP datagrams delivered to UDP users.
Invalid Ports	The total number of received UDP datagrams for which there was no application at the destination port.
Received Errors	The number of received UDP datagrams that could not be delivered for reasons other than the lack of an application at the destination port.
Output Datagrams	The total number of UDP datagrams sent from this entity.

Table Tab

The UDP listener table contains information about this entity's UDP end-points on which a local application is currently accepting datagrams.

Parameter	Description
Local Address	The local IP address for this UDP listener. In the case of a UDP listener which is willing to accept datagrams for any IP interface associated with the node, the value 0.0.0.0 is used.
Local Port	The local port number for this UDP listener.

SNMP

Implementation of the SNMP group is mandatory for all systems which support an SNMP protocol entity. Some of the objects defined below will be zero-valued in those SNMP implementations that are optimized to support only those functions specific to either a management agent or a management station. In particular, it should be observed that the objects below refer to the SNMP entity, and there may be several SNMP entities residing on a managed node (e.g., if the node is hosting acting as a management station).

\Parameter	Description
Input/Output packets	The total number of Messages delivered to the SNMP entity from the transport service.
Input/Output Get-Requests	The total number of SNMP Get-Request PDUs which have been accepted and processed by the SNMP protocol entity.
Input/Output Get-Next-Requests	The total number of SNMP Get-Next PDUs which have been accepted and processed by the SNMP protocol entity.

Parameter	Description
Input/Output Set-Requests	The total number of SNMP Set-Request PDUs which have been accepted and processed by the SNMP protocol entity.
Input/Output Get-Responses	The total number of SNMP Get-Response PDUs which have been accepted and processed by the SNMP protocol entity.
Input/Output Traps	The total number of SNMP Trap PDUs which have been accepted and processed by the SNMP protocol entity.
Input/Output TooBigs Errors	The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field is 'tooBig'.
Input/Output NoSuchNames Errors	The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field is 'noSuchName'.
Input/Output BadValues Errors	The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field is 'badValue'.
Input/Output GenErrs Errors	The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field is 'genErr'.